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1. (Amended) A silicon-based film comprising a crystal phase formed on a substrate, said substrate having a surface shape represented by a function f , wherein the surface shape has a standard deviation of an inclination $\arctan(df/dx)$ from 15° to 55° within the range of a sampling length dx from 20 nm to 100 nm, wherein a Raman scattering strength resulting from an amorphous component in the silicon-based film is not more than a Raman scattering strength resulting from a crystalline component in the silicon-based film, and wherein a difference between a spacing in a direction parallel to a principal surface of the substrate and a spacing of single crystal silicon is within the range of 0.2% to 1.0% with regard to the spacing of the single crystal silicon.

2. (Unamended From Previous Version) The silicon-based film according to claim 1, comprising a crystal of a columnar structure in a thickness direction.

3. (Unamended From Previous Version) The silicon-based film according to claim 1, wherein a percentage of a diffraction strength of (220) plane due to X-ray or electron beam diffraction is 30% or more of a total diffraction strength.

4. (Unamended From Previous Version) The silicon-based film according to claim 1, which is formed by a plasma CVD method using a high frequency.

5. (Unamended From Previous Version) The silicon-based film according to claim 4, wherein the high frequency is not less than 10 MHz but no more than 10 GHz.

6. (Unamended From Previous Version) A photovoltaic element comprising a silicon-based semiconductor layer having at least one pin junction on a support, wherein at least one i-type semiconductor layer comprises the silicon-based film as set forth in any one of claims 1 to 5.

7. (Unamended From Previous Version) The photovoltaic element according to claim 6, wherein the silicon-based semiconductor layer is formed on a substrate comprising at least a first transparent conductive layer stacked on the support, and the first transparent conductive layer has the surface shape represented by the function f.

8. (Unamended From Previous Version) The photovoltaic element according to claim 6, wherein the support is a conductive support.

REMARKS

This application has been carefully reviewed in light of the Office Action dated July 26, 2002 (Paper No. 6). Claims 1 to 8 are pending, with Claim 1 being the sole independent claim. Reconsideration and further examination are respectfully requested.